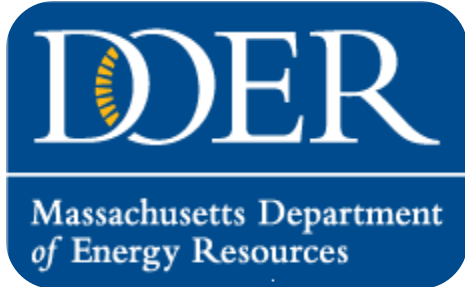


Creating A Cleaner Energy Future For the Commonwealth



Leading By Example Council Meeting

May 12, 2015

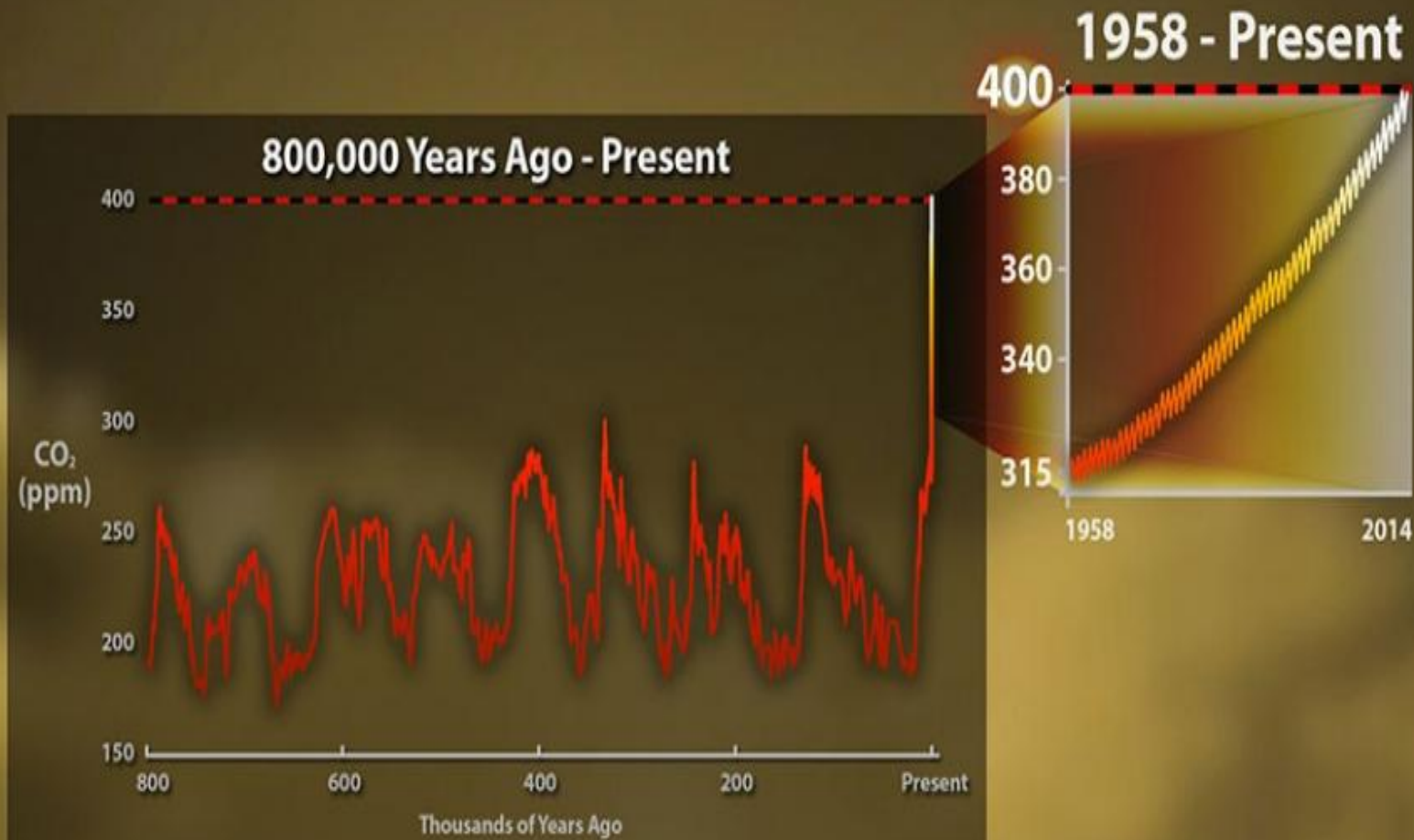
Agenda

- Campus Welcome
- Introductions
- State Policy Updates
- LBE Updates
- DCAMM Updates
- Open Discussion-EO 484
- LBE Grants
- LBE Non-Building Initiatives Updates
- Bristol CC Project Information
- Campus Tour



CO₂ Hits Climate Milestone

First Full Month with Levels Above 400 ppm



State Policy Updates

DOER Commissioner

- Judith Judson appointed DOER Commissioner in April
- Previously at innovative technology firms
- Previous Chairman and Commissioner of MA Public Utilities Commission (now DPU)
- Expert in energy storage
- Business and mechanical engineering degrees



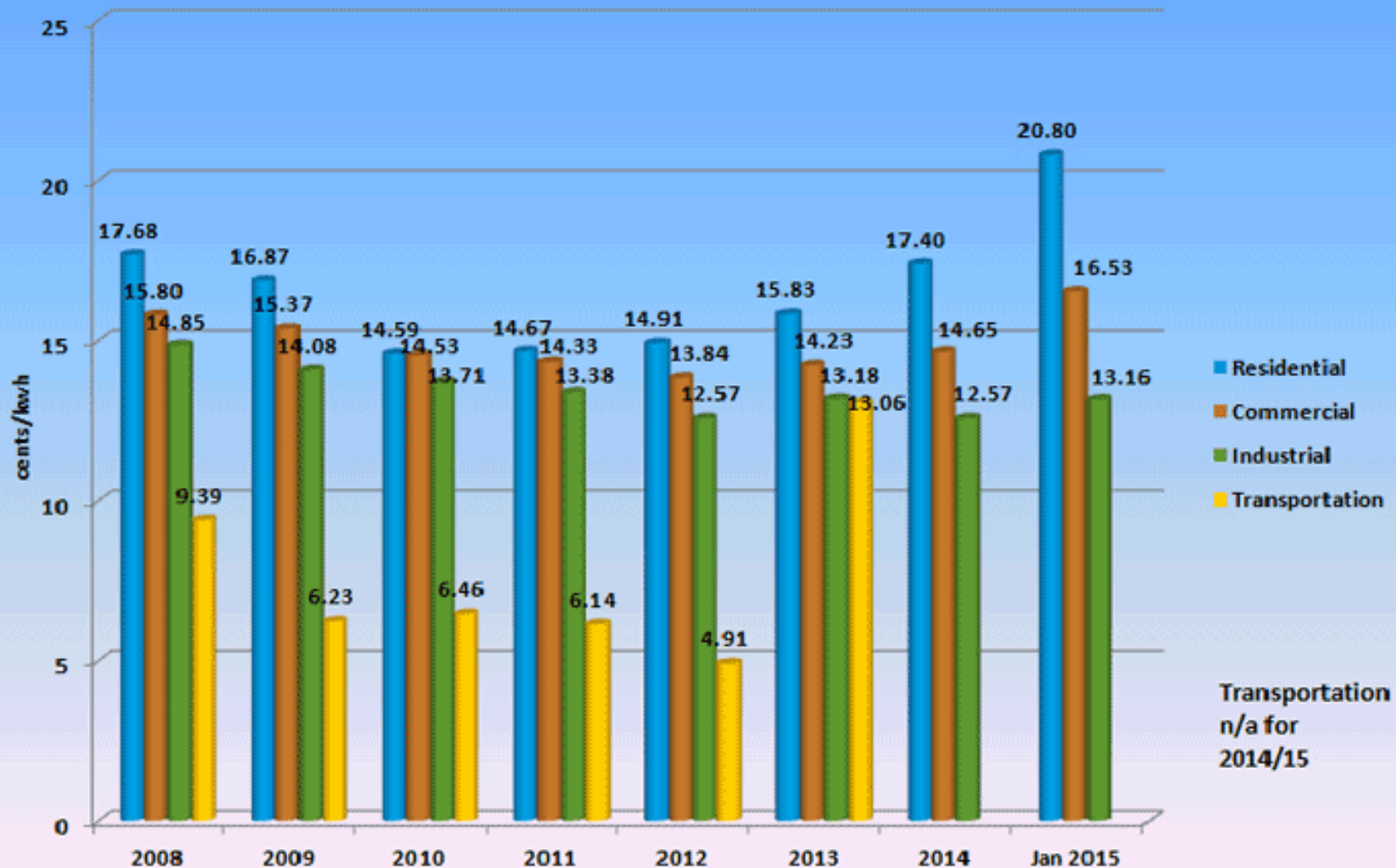
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State Energy Profile-Electricity Costs

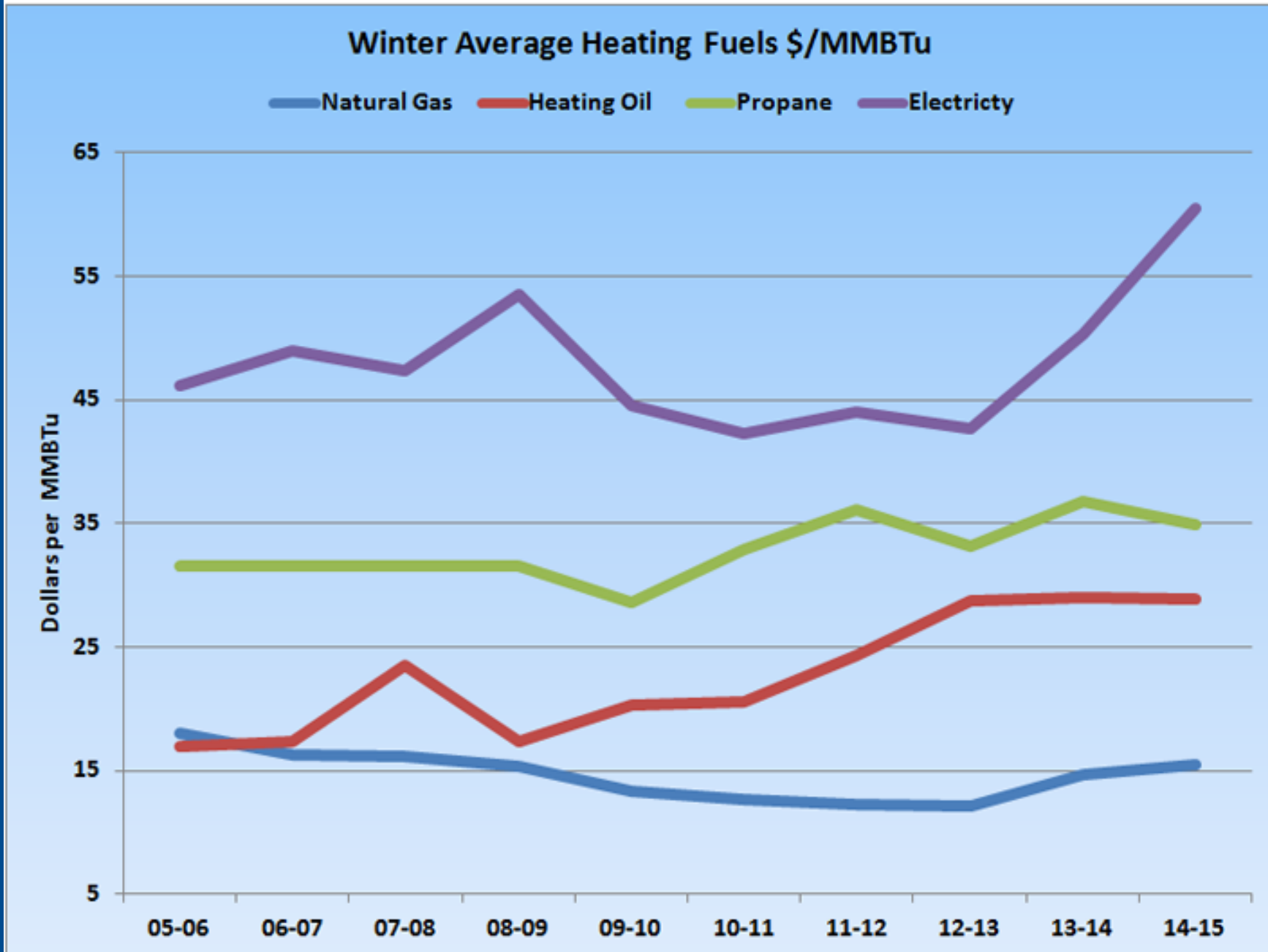
Mass Average Retail Electricity Price

2008-2015

Source: US EIA Electricity Reports 4/15

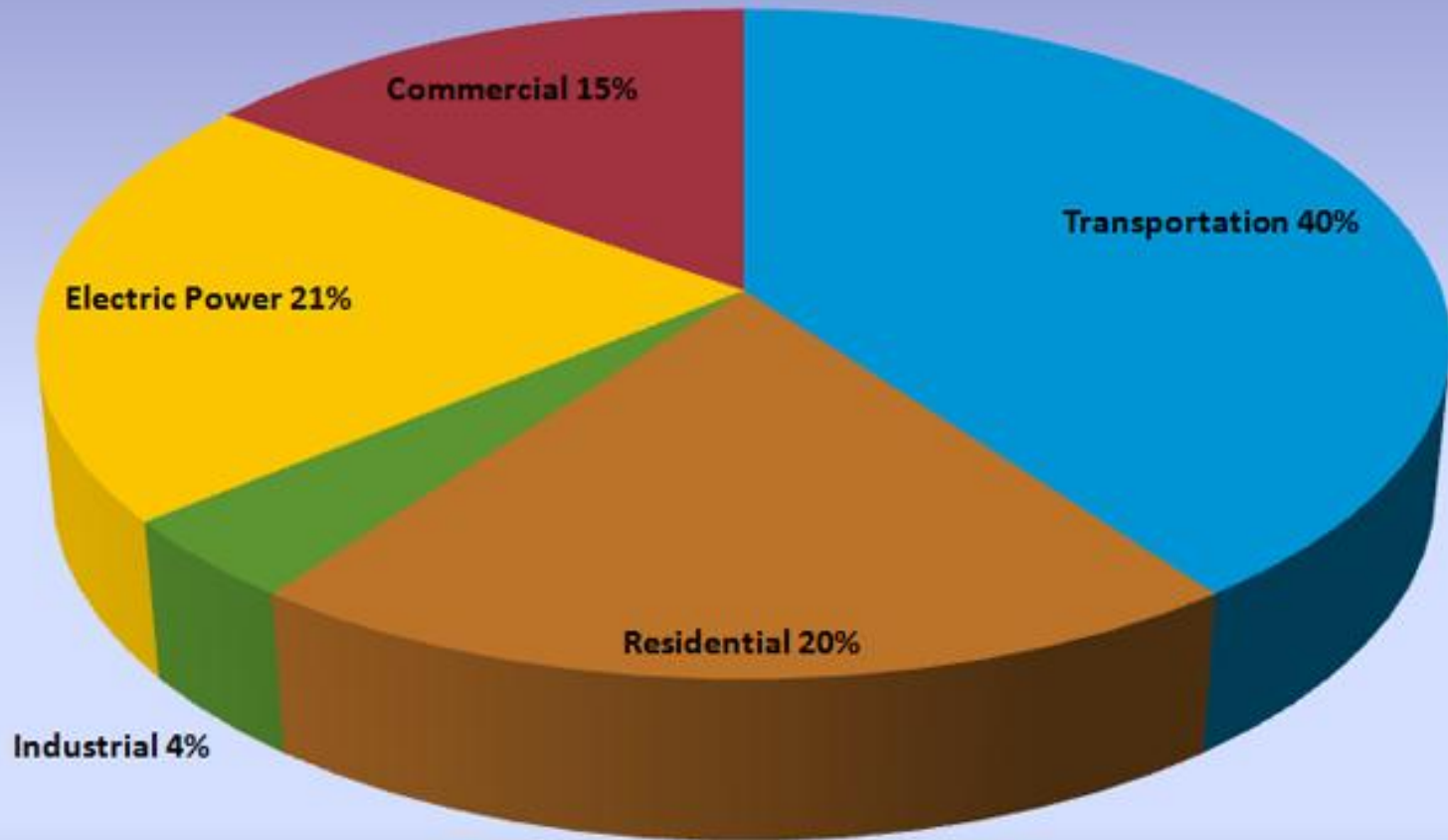


State Energy Profile



State Energy Profile

Massachusetts Share of Mtons of Carbon Dioxide 2011



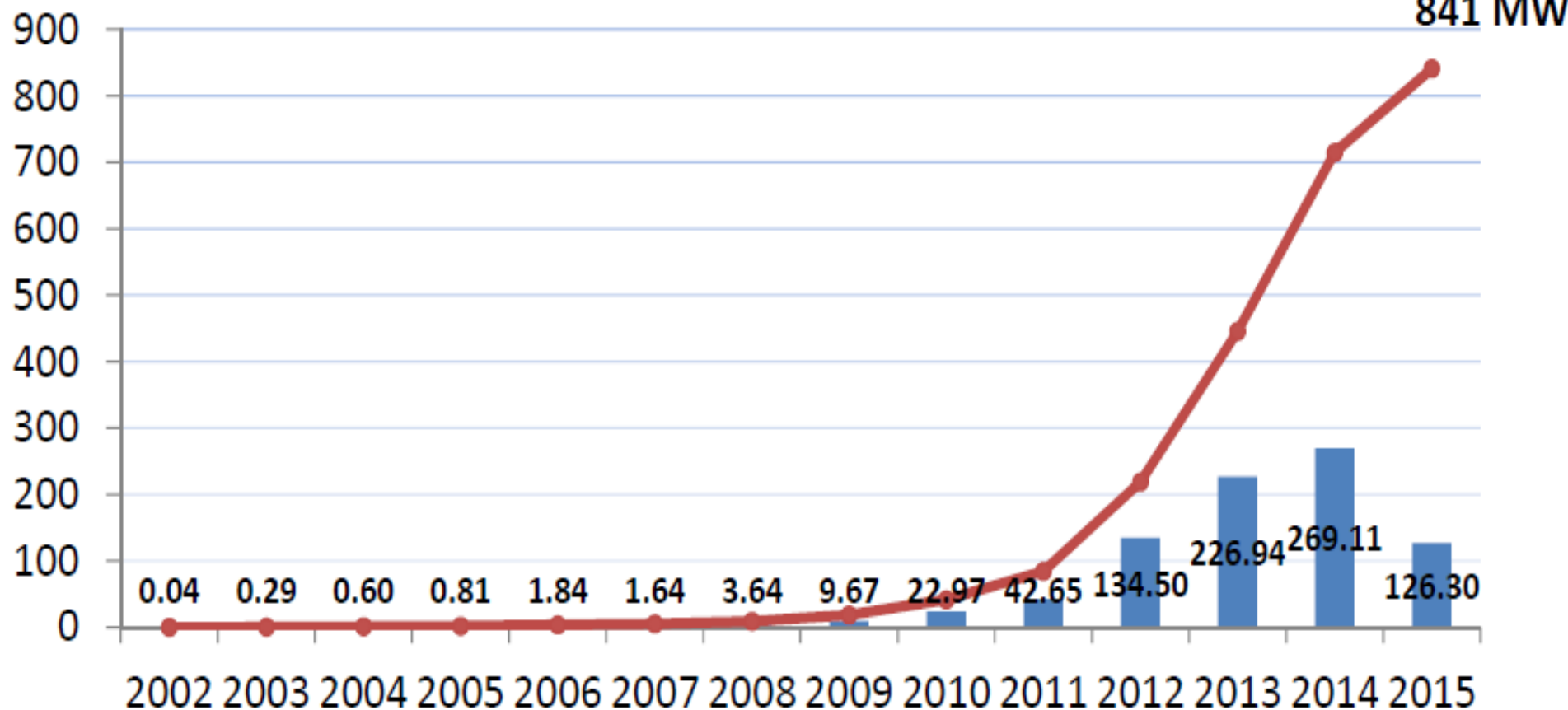
Statewide Clean Energy Progress

Installed Solar Capacity in Massachusetts

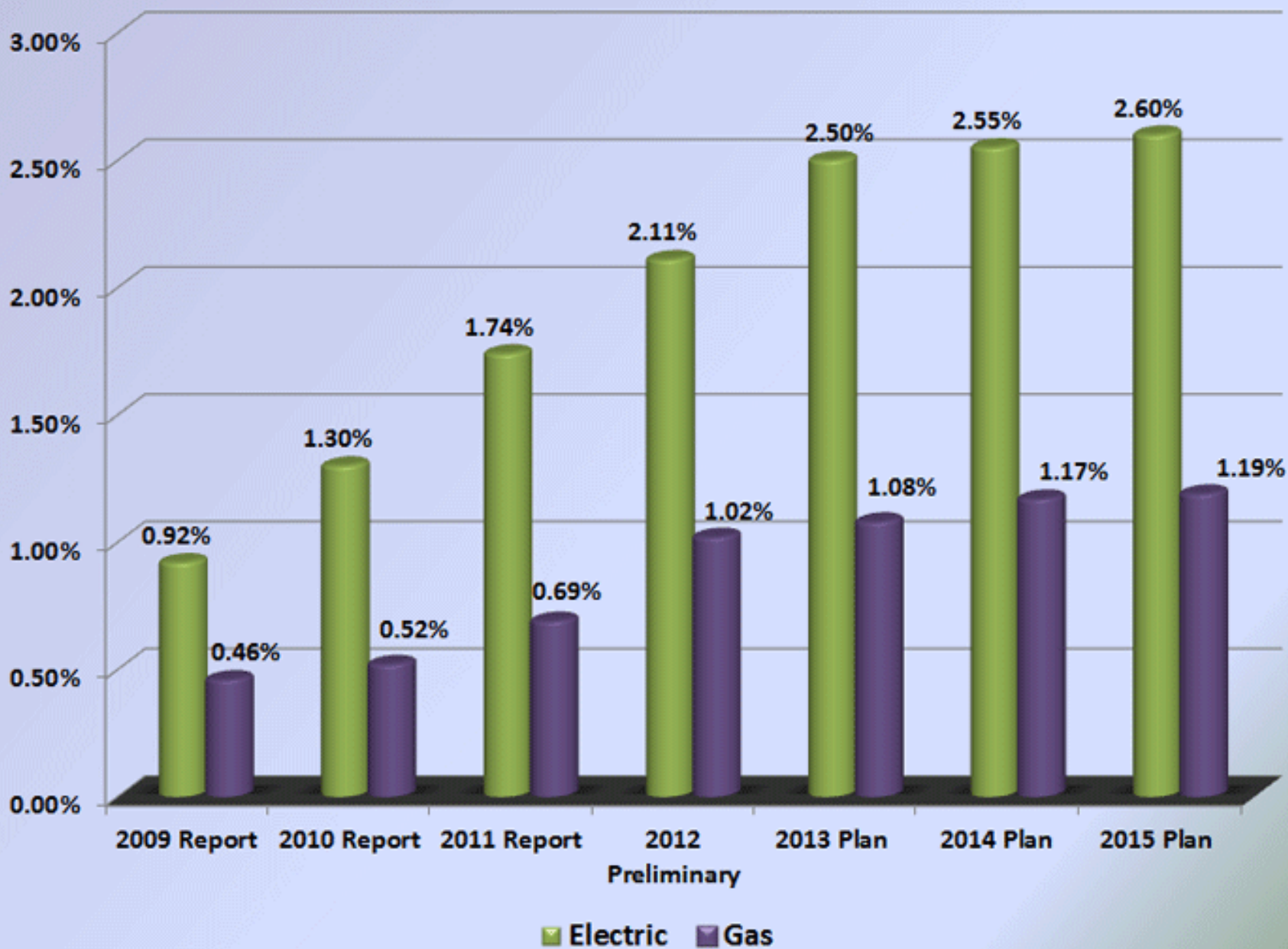
■ Annual Capacity Installed

—●— Cumulative Capacity

841 MW



Efficiency Goal as a Percentage of Retail Sales



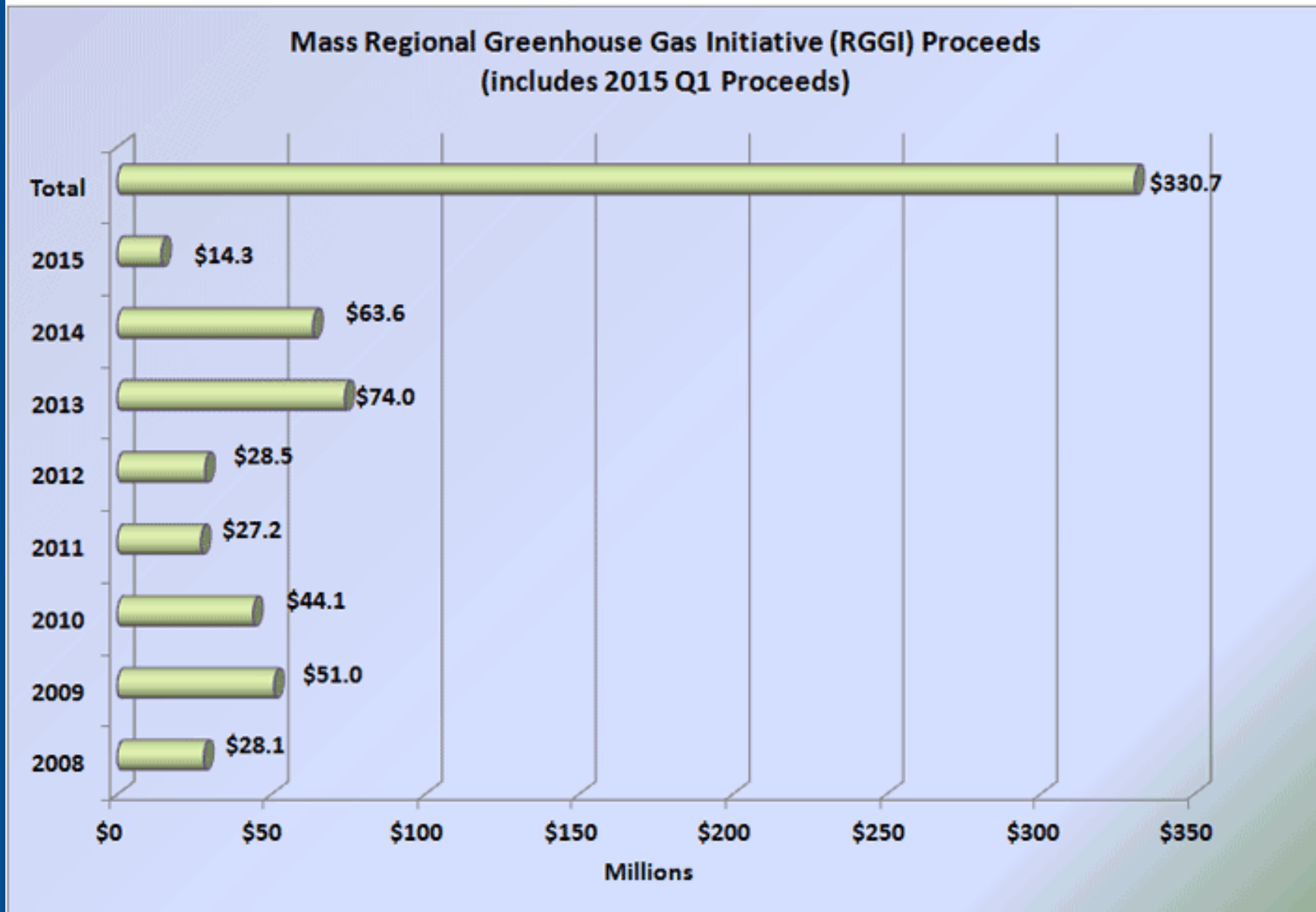
Statewide Clean Energy Progress

Gallons of Gasoline Equivalent Reduced

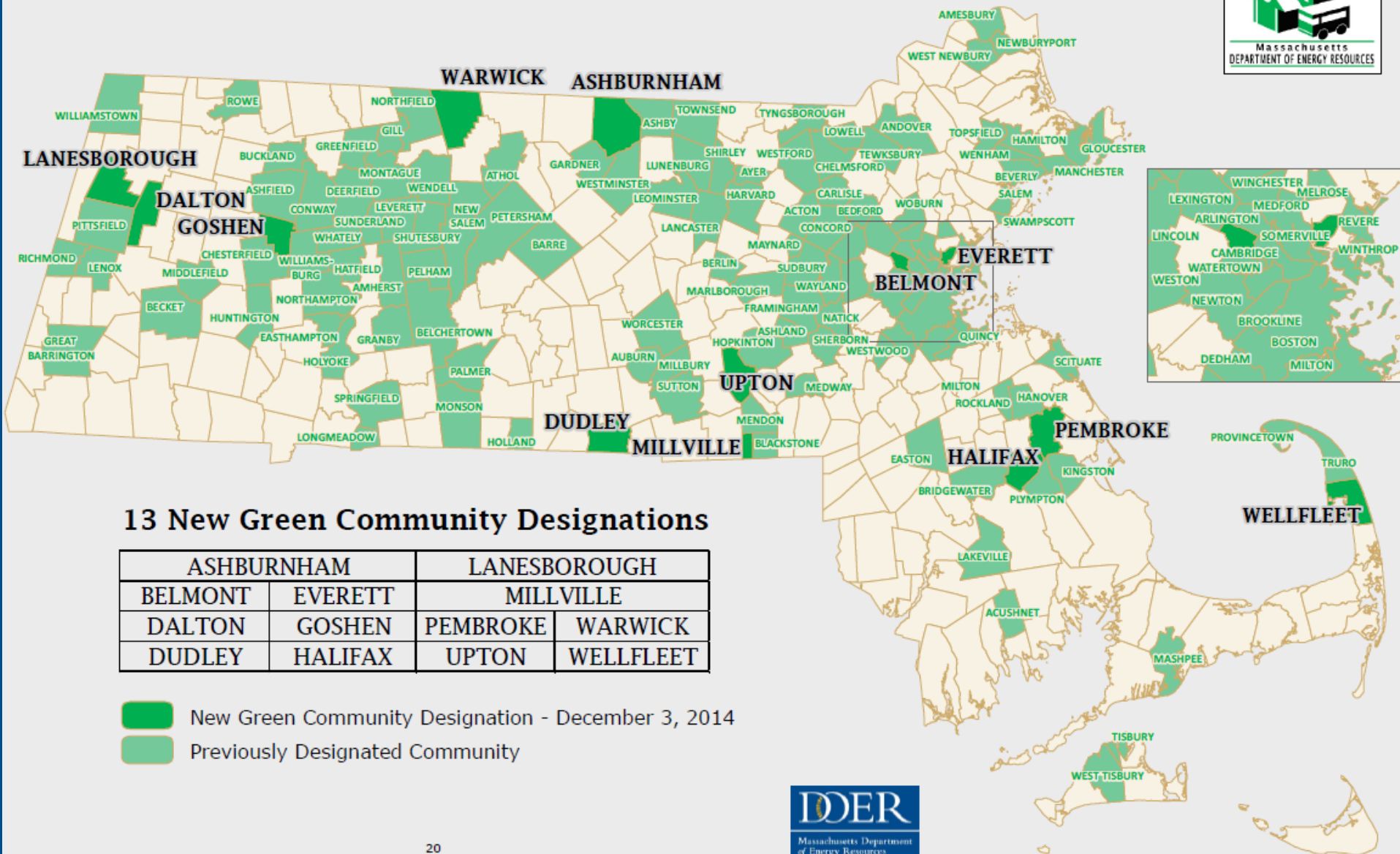


	2009	2010	2011	2012	2013
Electric & Plug-In Vehicles	-	-	-	21,917	17,808
Hybrid Vehicles	-	-	-	29,524	24,939
Idle Reduction	-	4,317	19,598	8,166	44,000
Vehicle Miles Traveled Reductions	-	-	-	95,593	117,470
Fuel Economy Improvements	41,396	69,456	132,317	157,545	57,685
Off-Road Vehicles	-	2,280	-	-	124,578
Alternative Fuel Vehicles	3,455,460	4,993,884	3,149,226	7,040,890	6,648,247

Statewide Clean Energy Progress



GREEN COMMUNITY DESIGNATIONS REACH ONE HUNDRED THIRTY-SIX



Electric Vehicle Rebate Program

- Additional \$2 million investment in program in April
- Accelerates electric vehicle adoption
- Over \$1.9 million in rebates issued since June 2014
- Rebates up to \$2,500 to MA residents for purchase or lease of electric vehicles
- Website: mor-ev.org



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Woodstove Rebate Program

- Additional \$900,000 available
- Rebates for homeowners to replace older, inefficient woodstoves with more efficient models
 - Standard rebate: up to \$1,250
 - Low-income rebate: up to \$2,250
- EPA-certified models use one-third of wood and emit 70-90% less particulates
- Rebate applications accepted until 5/22
- Website: masscec.com/woodstove



Logan Airport Climate Plan

- **2020 Goals** (2012 baseline)
 - Reduce greenhouse gas emissions by 40%
 - Reduce energy consumption by 25%
- **Resiliency**
 - Will spend \$9 million by 2020 to address sea level rise (flood doors, barriers, and portable pumps)
 - Within 10 years, move and upgrade all critical equipment to withstand storms



Final Net Metering Task Force Report

- **Report**

- Final report delivered to the legislature on May 1st
- Support for solar and continuing policies to reach 1,600 MW goal and beyond
- Agreement that all users of the distribution system should pay fair share
- Disagreement on what would need to be done to raise/eliminate caps in the long-term, but agreement that differences were minor and contingent on reaching compromises on other issues

- **Next Steps**

- Administration does not support raising the caps without reform to the existing policy framework
- Bills have been filed that could lead to comprehensive reform
- Changes to the state's net metering rules and existing caps can only be made by the legislature



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Upcoming Events

- WasteWise Forum: Diversion and Reduction through Food Donation
 - [6/4/15 \(Cambridge\)](#)
- Berkshire County Jail Energy Project Tour
 - [6/5/15 from 1:00-5:30pm \(Pittsfield\)](#)
- CURC Webinar: Can that be Composted? Should it Be?
 - [6/11/15 from 1:00-2:30pm](#)



Solar PV at Berkshire
County Jail

LBE Updates

EPA Environmental Merit Award

- EPA New England Award
- 2015 Award Recipient in Governmental Category
- Recognizes all of our collective efforts!



Energy Resiliency at State Facilities

LBE is looking into new effort that will help to protect *critical facilities* from power outages during predicted climate change impacts, such as sea level rise and more frequent extreme weather events

Critical facilities could include:

1. Life safety resources
(e.g. police, fire, hospitals, wastewater treatment)
2. Lifeline resources
(e.g. food and fuel supply, transportation facilities)
3. Community resources
(e.g. town halls, senior centers, schools)



Types of Energy Resiliency Projects

Projects could include:

- Clean energy generation
- Energy storage
- Energy management systems that enable load shedding
- Islanding Technology
- Microgrids



EEMS Update

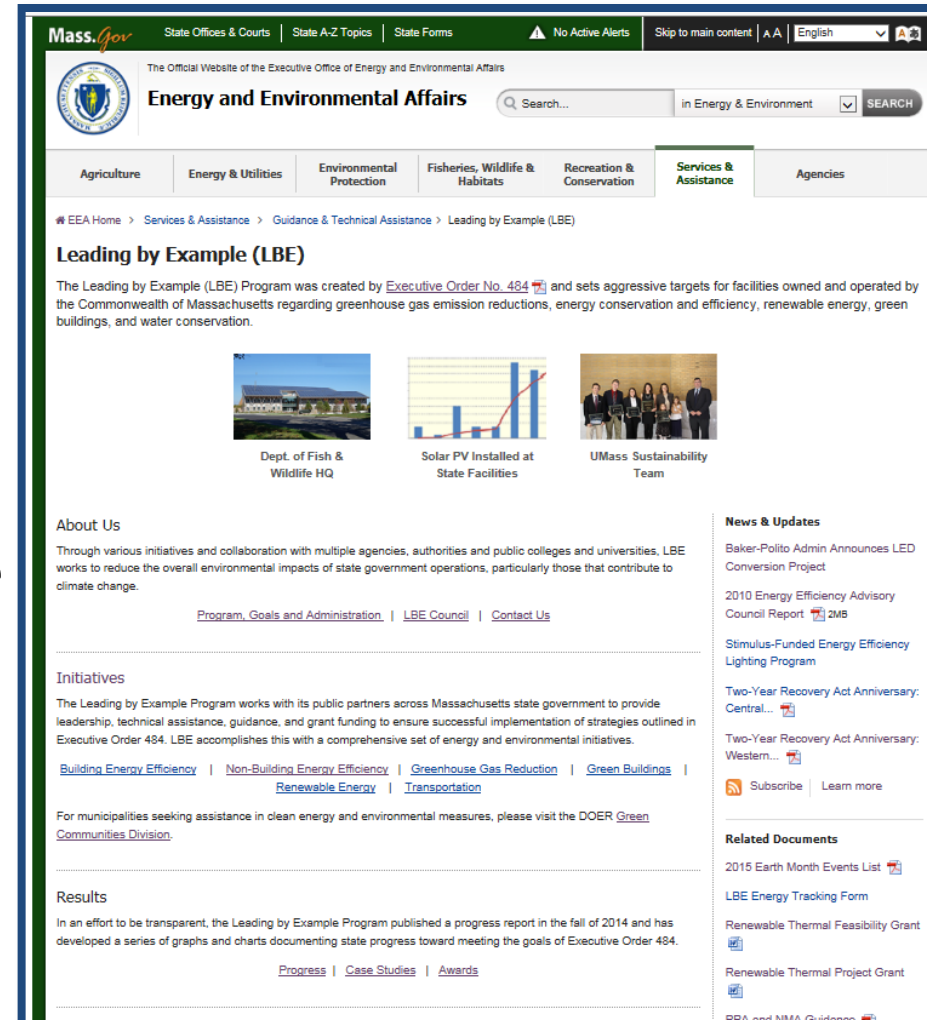
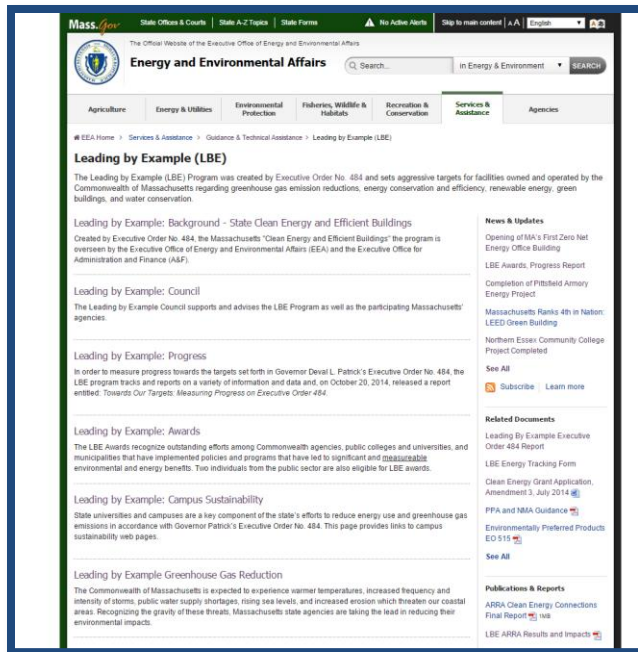
- Current contract ends May 31, 2015
- Looking to improve building energy intelligence capabilities and services
- User feedback and other similar programs key in development of RFR
- Seeking tiered solutions to address diverse building types in Commonwealth portfolio
- RFR expected by end of May from DCAMM



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Revamped LBE Website

- Updates Include:
 - New Layout
 - New Progress Page
 - Comprehensive Initiatives Page
 - Extensive Links Page

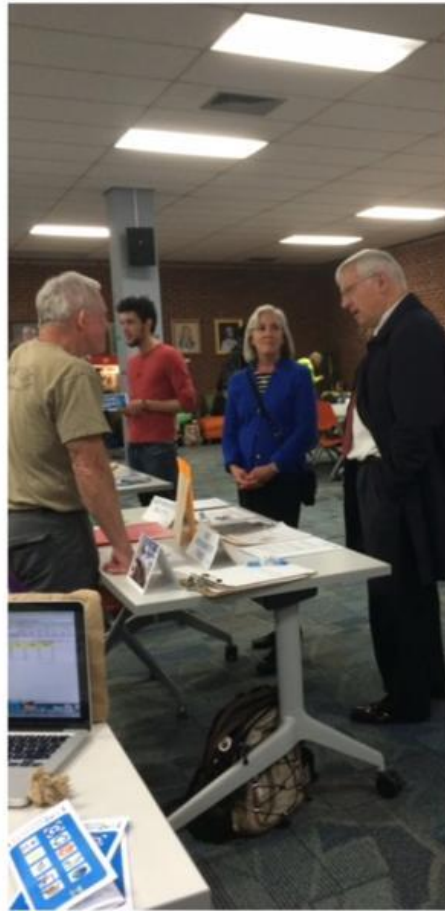


Cleaner Energy Future For the Commonwealth

Earth Week Recap



Earth Day Celebration at Massasoit CC



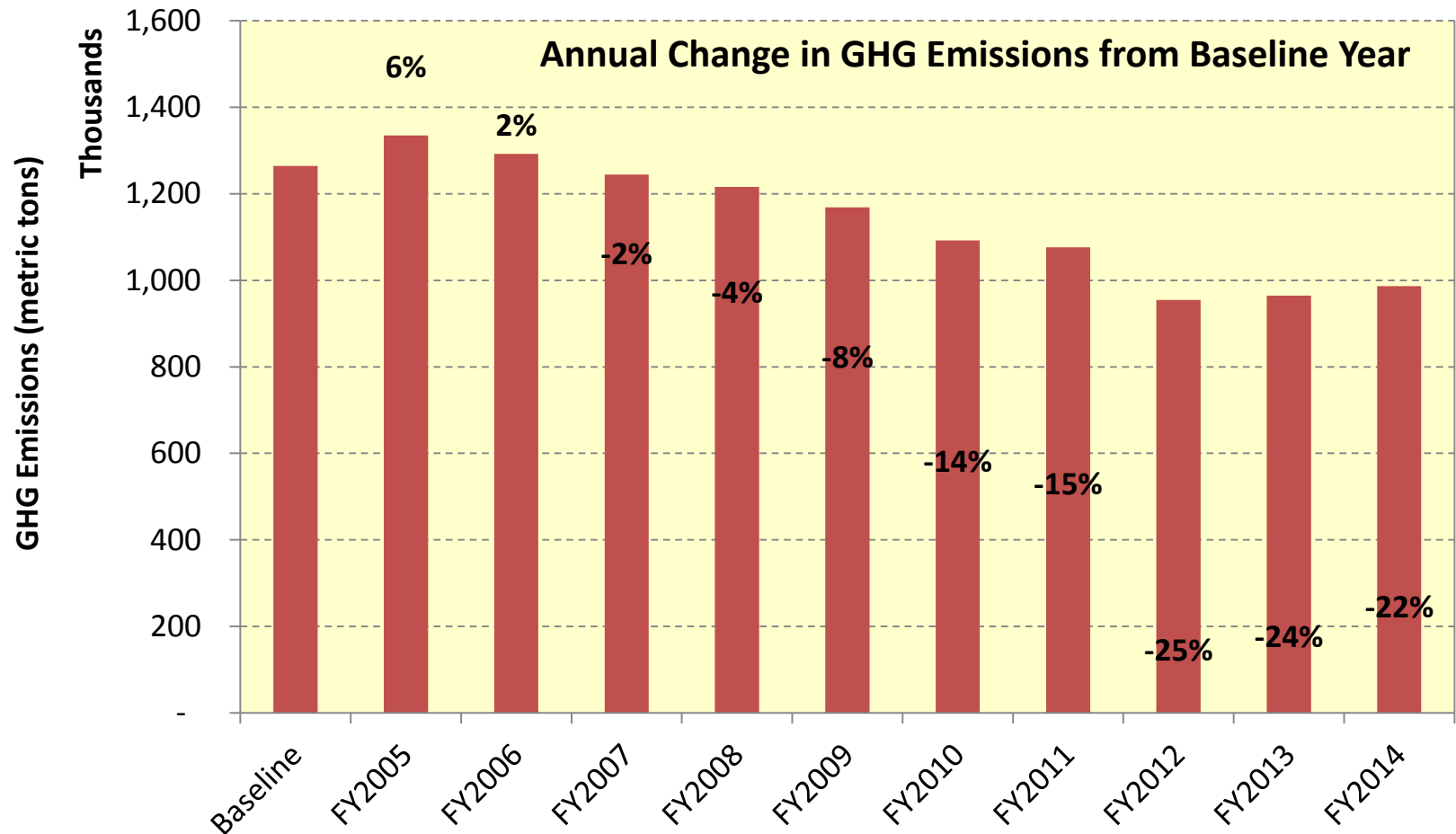
UMass Lowell AEP Announcement



DCR LED Streetlight Event

Latest LBE Progress

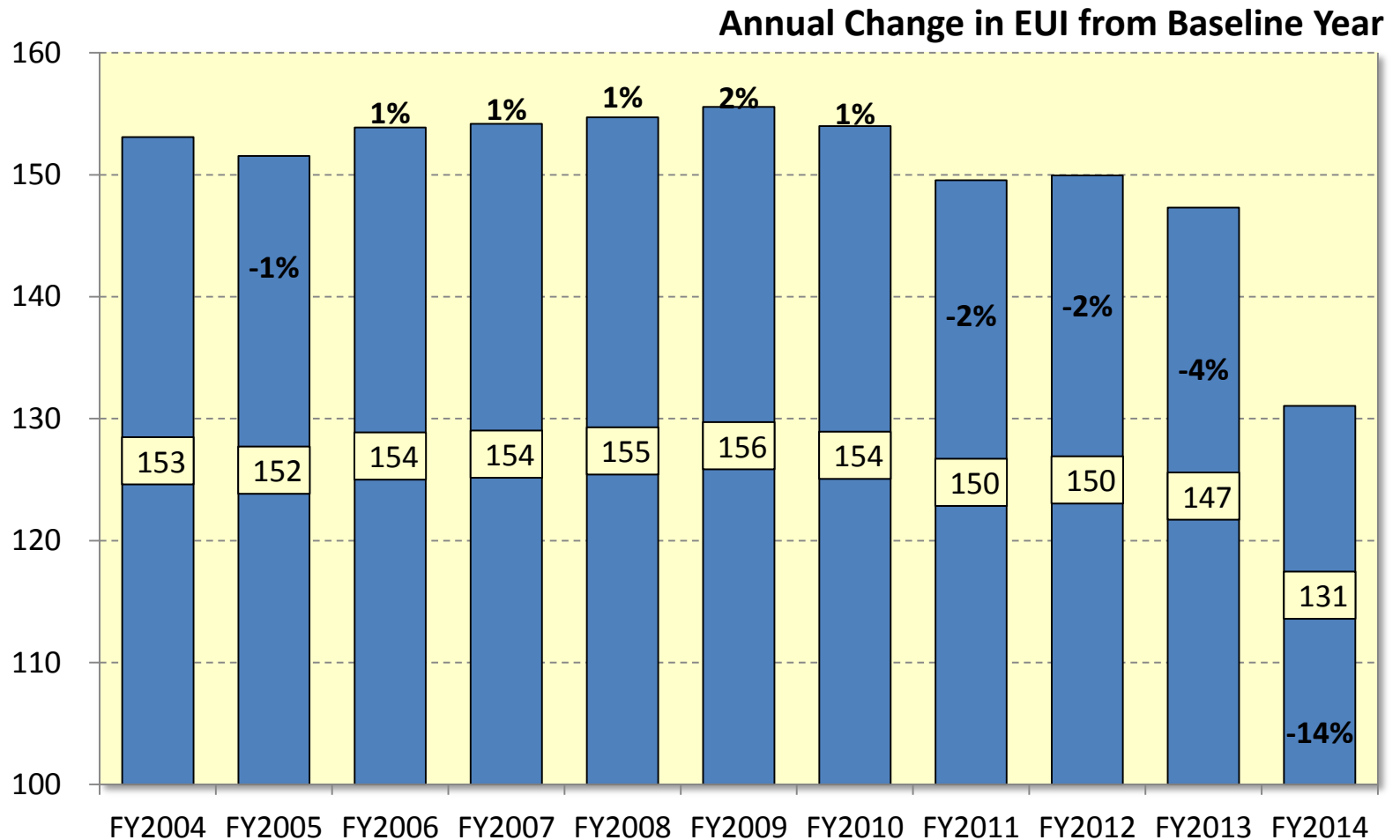
FY14: GHG Emissions Reductions



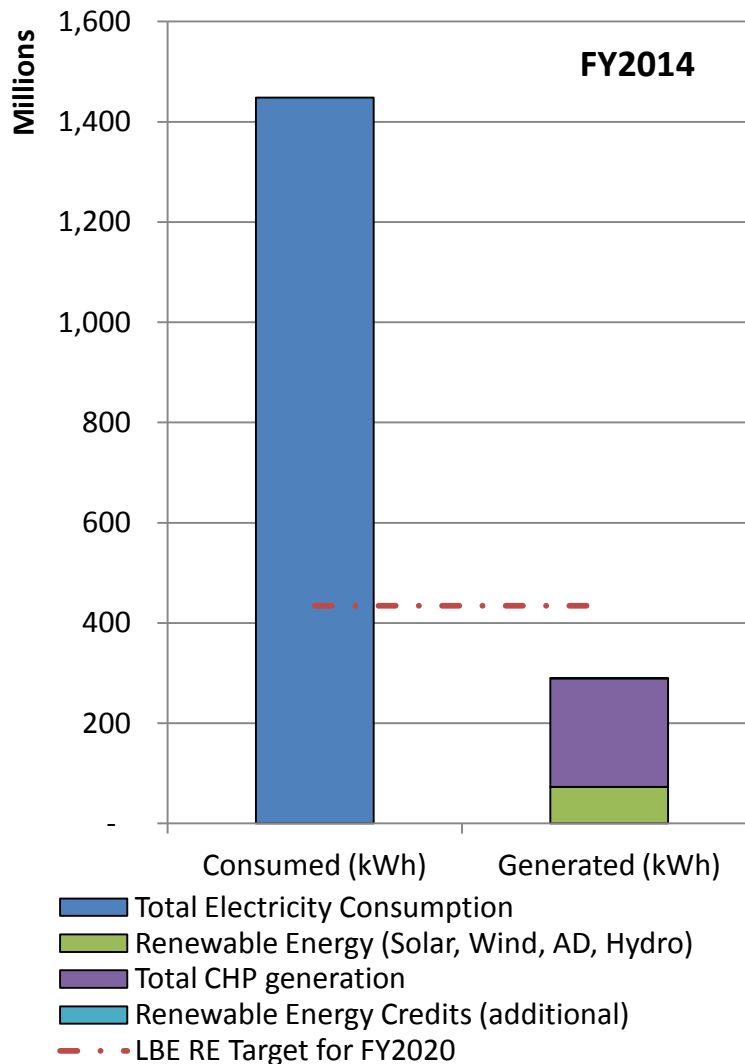
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FY14: EUI Reductions (kBtu/SF)



FY14: Renewable & Onsite Generation

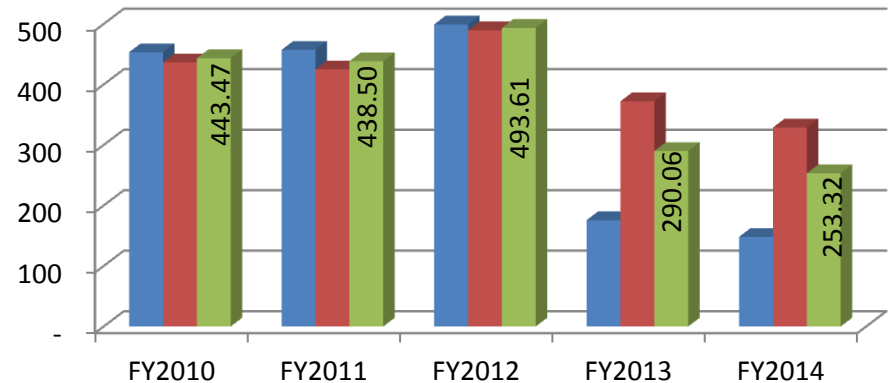


- 20% of state's total electricity consumption came from on-site generation
- Total electricity consumption of 1.4 billion kWh
- 289.4million kWh generated by on-site renewable power (green bar) and CHP (purple bar)
- 3,283 kWh additional RECs purchased
- Red line represents E.O. 484 Target for FY20, 434.5 million

Better Buildings Challenge: Showcase Projects

Hogan-Wrentham Project

- 43% source EUI reductions
- \$2.5M annually savings



- DDS Hogan Regional Center
- DDS Wrentham Developmental Center
- SOURCE EUI TOTAL



Home Partners Allies Solutions Media About

Home » Solutions » Showcase Projects » State and Municipal Partners » Commonwealth of Massachusetts - North Central Correctional Institute at Gardner

NORTH CENTRAL CORRECTIONAL INSTITUTE AT GARDNER

Showcase Project: Commonwealth of Massachusetts

LOCATION: Gardner, MA | PROJECT SIZE: 808,000 square feet | FINANCIAL OVERVIEW: Project Cost \$13.4 Million

Annual Energy Use (Source EUI)		Annual Energy Cost	
Baseline (2012)	177 kBtu/sq. ft.	Baseline (2012)	\$1,926,000
Expected (2016)	72 kBtu/sq. ft.	Expected (2016)	\$380,000
Actual	COMING SOON	Actual	COMING SOON

Expected Energy Savings: **60%** | Expected Savings: **\$1,546,000**

New Windows

NCCI Gardner Project

- Submitted 2nd Showcase
- 60% energy savings
- \$1.5M annual savings



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Creating A Cleaner Energy Future For the Commonwealth

DCAMM Updates

Discussion on EO 484

- 40% GHG Emission Reduction by 2020, 80% by 2050
- 35% Energy Use Reduction by 2020
- 30% Use of Renewable Energy by 2020
- 15% Potable Water Use Reduction by 2020
- Mass. LEED Plus standard for new construction/major renovations - 20% better energy performance than code
- Targeted Strategies:
 - Comprehensive on-site energy efficiency programs
 - Energy efficient HVAC equipment
 - Fuel switching
 - Purchase of energy efficient products
 - Increased energy conservation by employees
 - Installation of on-site renewable energy and CHP
 - Procurement of renewable energy
 - Use of bio-based and other alternative fuels
 - Purchase of Renewable Energy Certificates



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Questions on EO484

- Are the targets still appropriate?
- Should there be additional targets?
- Is Mass. LEED Plus still relevant?
- What is missing that could move us forward?
- What, if anything, should be removed?
- How could a new directive be helpful to agencies/campuses/facilities?
- What else should LBE consider?



LBE Grants

LBE Update: Revised Solar Canopy Grant Program

Grant opportunity for solar PV at parking lots, garage roofs, and pedestrian walkways on state owned land

- **\$0.75/ watt up to \$600,000 per project** for systems owned & operated by the Commonwealth
- \$0.50/ watt up to \$500,000 per project for systems owned by a third party
- Projects over 200 kW capacity
- All procurement options eligible
- Some on-site state consumption required
- Require minimum # of EV charging stations depending on array size
- Posted on LBE website



LBE Renewable Grants Updates

Awarded Grants

- Dept. of Fish and Game: **Moving forward**
 - Air source heat pumps @ shellfish plant
 - Biomass installation at Fish Hatchery
 - Dept. of Conservation and Recreation: **In Progress**
 - 8 Feasibility Studies for biomass and ASHP
 - ASHP installation at Quabbin and Walden Pond
- Trial Court ASHP Feasibility Studies: **Identified 1 site for implementation**
- MBTA Hot Water Heat Pumps: **Identified 3 sites for pilot**

**Feasibility and Implementation Grants
still available**

LBE Non-Building Initiatives Updates

Solar Canopies

- Solar Canopy Inquiry Survey – Summary

- 16 different entities submitted
- Over 100 potential lots
- Conservative estimate of 50 MW potential

- Next Steps

- Choose ~ 25 best sites:
 - Size, shape, shading, entity interest
- Feasibility Study RFQ
 - Target release 6/1/15

Agency Parking Lot Inquiry Form

Solar canopies are emerging as a growing sector in the non-residential solar market, lauded for their many advantages including energy savings and increased energy security, solar canopies provide aesthetic value, shade and shelter from weather, and reduce the need for parking lot maintenance. This survey was developed in an effort to establish a statewide estimate of the state's potential for solar canopy development. Participation in this survey does not imply any sort of final decision on the part of the agency, but future decisions to proceed with solar canopy development will be made in concert with the agency, based on the results of this survey.

Please submit this survey by Friday, April 10th. Thank you for your participation.

Please enable macros in Excel before submitting this survey. (To do this, click "enable content" in the status bar.)

Name:

E-mail:

Phone:

Agency:

How much electricity generated by onsite renewables does your agency currently net meter (in MWs)?

Please list any agency parking lots with an estimated 150 parking spaces or more (excluding any lots slated for future development or that are known to be less than 150 parking spaces). Do your best to fill out as much information as you can. Feel free to submit information that is not fully populated. If necessary, we will follow up with you.

Lot/Site Name	Lot Address (or address of closest building)	Number of Parking Spaces	Area (sq.ft)	Electric Utility	Is there access to 3 phase power within 100 meters of the site?
1					
2					
3					
4					
5					
6					

Fuel Efficiency Standard



Recap

- Legislative Requirement
 - Chapter 169 – Green Communities Act
- Minimum average EPA-estimated MPG requirements for new vehicle acquisitions by executive branch state agencies:
 - Passenger cars
 - Trucks/vans/SUVs
- Minimum acquisition requirements for:
 - PHEVs/BEVs
 - AFVs/HEVs



Updates

- Exemption clause added for category II vehicles
- Target release July 2015
- Ongoing fleet manager outreach, meetings & training



New Vehicle Contract: VEH98

- To replace current state vehicle contract (OVM10)
- New contract working group represents diverse interests
 - LBE and MA Clean Cities representation to ensure sufficient number of efficient gasoline, hybrid, alternative fuel and electric vehicles
- Vehicles on contract will help support goals of standard
- Target Date: Late Sept./Early Oct.

Bristol Community College Project Overview